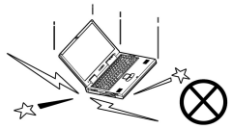
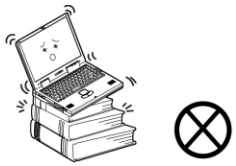
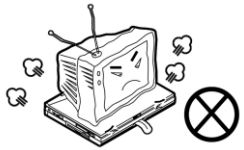
SERVICE MANUAL

notebook

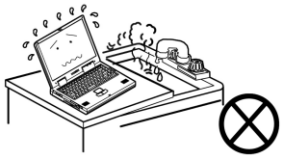
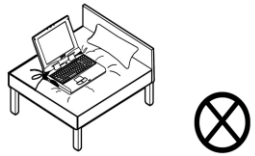
Instructions for Care and Operation

The notebook computer is quite rugged, but it can be damaged. To prevent this, follow these suggestions:

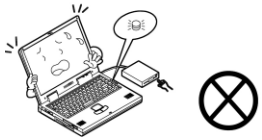
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.

Do not expose the computer to any shock or vibration.	*Do not place it on an unstable surface.*	*Do not place anything heavy on the computer.*
		

2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.

Do not expose it to excessive heat or direct sunlight.	*Do not leave it in a place where foreign matter or moisture may affect the system.*	*Don't use or store the computer in a humid environment.*	*Do not place the computer on any surface which will block the vents.*
			

3. **Follow the proper working procedures for the computer**. Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.

Do not turn off the power until you properly shut down all programs.	*Do not turn off any peripheral devices when the computer is on.*	*Do not disassemble the computer by yourself.*	*Perform routine maintenance on your computer.*
			

Removal Warning

When removing any cover(s) and screw(s) for the purposes of device upgrade, remember to replace the cover(s) and screw(s) before restoring power to the system.

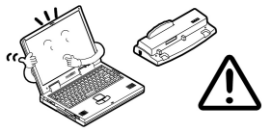
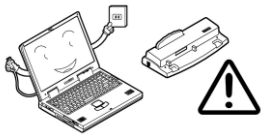
Also note the following when the cover is removed:

- Hazardous moving parts.
- Keep away from moving fan blades

Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines and power cord). You must also remove your battery in order to prevent accidentally turning the machine on.

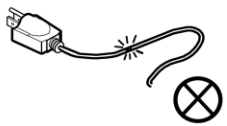
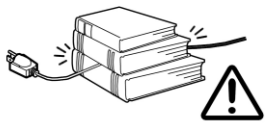
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices**.

Use only approved brands of peripherals.	*Unplug the power cord before attaching peripheral devices.*
	

Power Safety

The computer has specific power requirements:

- Only use a power adapter approved for use with this computer.
- Your AC adapter may be designed for international travel but it still requires a steady, uninterrupted power supply. If you are unsure of your local power specifications, consult your service representative or local power company.
- The power adapter may have either a 2-prong or a 3-prong grounded plug. The third prong is an important safety feature; do not defeat its purpose. If you do not have access to a compatible outlet, have a qualified electrician install one.
- When you want to unplug the power cord, be sure to disconnect it by the plug head, not by its wire.
- Make sure the socket and any extension cord(s) you use can support the total current load of all the connected devices.
- Before cleaning the computer, make sure it is disconnected from any external power supplies.

Do not plug in the power cord if you are wet.	*Do not use the power cord if it is broken.*	*Do not place heavy objects on the power cord.*
		

Battery Precautions

- Only use batteries designed for this computer. The wrong battery type may explode, leak or damage the computer.
- Do not continue to use a battery that has been dropped, or that appears damaged (e.g. bent or twisted) in any way. Even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire.
- Recharge the batteries using the notebook's system. Incorrect recharging may make the battery explode.
- Do not try to repair a battery pack. Refer any battery pack repair or replacement to your service representative or qualified service personnel.
- Keep children away from, and promptly dispose of a damaged battery. Always dispose of batteries carefully. Batteries may explode or leak if exposed to fire, or improperly handled or discarded.
- Keep the battery away from metal appliances.
- Affix tape to the battery contacts before disposing of the battery.
- Do not touch the battery contacts with your hands or metal objects.

Battery Guidelines

The following can also apply to any backup batteries you may have.

- If you do not use the battery for an extended period, then remove the battery from the computer for storage.
- Before removing the battery for storage charge it to 60% - 70%.
- Check stored batteries at least every 3 months and charge them to 60% - 70%.

Battery Disposal

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Caution

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's instructions.

Battery Level

Click the battery icon in the taskbar to see the current battery level and charge status. A battery that drops below a level of 10% will not allow the computer to boot up. Make sure that any battery that drops below 10% is recharged within one week.

Related Documents

You may also need to consult the following manual for additional information:

User's Manual on Disc

This describes the notebook PC's features and the procedures for operating the computer and its ROM-based setup program. It also describes the installation and operation of the utility programs provided with the notebook PC.

System Startup

1. Remove all packing materials.
2. Place the computer on a stable surface.
3. Insert the battery and tighten the screws.
4. Securely attach any peripherals you want to use with the computer (e.g. keyboard and mouse) to their ports.
5. Attach the AC/DC adapter to the DC-In jack at the rear of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter.
6. Use one hand to raise the lid/LCD to a comfortable viewing angle (do not to exceed **130** degrees); use the other hand (as illustrated in ***Figure 1***) to support the base of the computer (**Note**: **Never** lift the computer by the lid/LCD).
7. Press the power button to turn the computer "on".

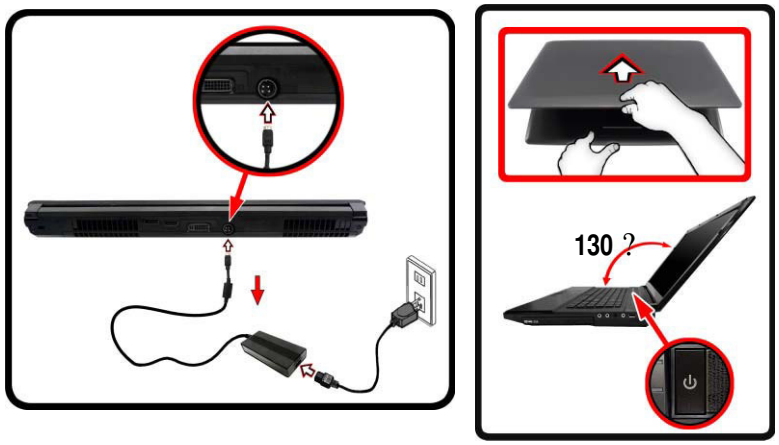


Figure 1
Opening the Lid/LCD/ Computer with AC/DC Adapter Plugged-In

Specifications

Latest Specification Information

The specifications listed here are correct at the time of sending them to the press. Certain items (particularly processor types/speeds) may be changed, delayed or updated due to the manufacturer's release schedule. Check with your service center for more details.

CPU

The CPU is not a user serviceable part. Accessing the CPU in any way may violate your warranty.

Processor Options

Intel® Core™ i7 Processor
i7-4930XM (3.00GHz)
8MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 57W
Intel® Core™ i7 Processor
i7-4900MQ (2.80GHz)
8MB L3 Cache, 22nm, DDR3L-1600MHz, TDP 47W
i7-4800MQ (2.70GHz), i7-4700MQ (2.40GHz)
6MB L3 Cache, 22nm, DDR3L-1600MHz, TDP 37W

LCD

17.3" (43.94cm) FHD LCD

Memory

Four 204 Pin SO-DIMM Sockets Supporting **DDR3L 1600MHz** Memory

(The real memory operating frequency depends on the FSB of the processor.)

Memory Expandable up to 16GB/32GB

Note: Four SO-DIMMs are only supported by Quad-Core CPUs; Dual-Core CPUs support two SO-DIMMs maximum

Core Logic

Intel® HM87 Express Chipset

BIOS

AMI BIOS (48Mb SPI Flash-ROM)

Security

Security (Kensington® Type) Lock Slot
BIOS Password
(**Factory Option**) Fingerprint Reader Module

Storage

(**Factory Option**) One 12.7mm(h) Optical Device Type Drive (Super Multi Drive/Blu-Ray Combo Drive/Blu-Ray Writer Drive)
Two Changeable 2.5" (h) SATA (Serial) Hard Disk Drives (HDDs)/SSDs supporting RAID Level 0/1
(**Factory Option**) Two mSATA Solid State Drives (SSD) supporting RAID Level 0/1

Video Adapter

Intel® Integrated GPU and NVIDIA® Discrete GPU

Supports NVIDIA® Optimus Technology

Intel Integrated GPU
Intel HD Graphics 4600
Dynamic Frequency (Intel Dynamic Video Memory Technology for up to **1.7GB**)
Microsoft DirectX® 11 Compatible

NVIDIA® Discrete GPU
NVIDIA® GeForce GTX 780M PCIe Video Card
4GB GDDR5 Video RAM on board
Microsoft DirectX® 11.1 Compatible
NVIDIA® GeForce GTX 770M PCIe Video Card
3GB GDDR5 Video RAM on board
Microsoft DirectX® 11.1 Compatible
nVIDIA® GeForce GTX 765M PCIe Video Card
2GB GDDR5 Video RAM on board
Microsoft DirectX® 11.1 Compatible

Pointing Device

Built-in **Illuminated** Touchpad (scrolling key functionality integrated)

Keyboard

Illuminated Full-size “WinKey” keyboard (with numeric keypad)

Audio

High Definition Audio Compliant Interface

S/PDIF Digital Output

Two Speakers

One Sub Woofer

Built-In Microphone

Sound Blaster Audio

Mini-Card Slots

Slot 1 for **WLAN** Module or **Combo WLAN and Bluetooth** Module

Slots 2 & 3 for mSATA **SSD**

Card Reader

Embedded Multi-In-1 Push-Push Card Reader

- MMC (MultiMedia Card) / RS MMC
- SD (Secure Digital) / Mini SD / SDHC/ SDXC
- MS (Memory Stick) / MS Pro / MS Duo

Interface

Three USB 3.0 Ports (Including one AC/DC Powered USB port)

One USB 2.0 Port

One eSATA Port (USB 3.0 Port Combined)

One HDMI-Out Port

One DisplayPort (1.1a)

One Mini DisplayPort

One S/PDIF Out Jack

One Headphone/Speaker-Out Jack

One Microphone-In Jack

One Line-In Jack

One Mini-IEEE1394a Port

One RJ-45 LAN Jack

One DC-In Jack

Note: External 7.1CH Audio Output Supported by Headphone, Microphone, Line-In and S/PDIF Out Jacks

Communication

Built-In Giga Base-TX Ethernet LAN

2M FHD PC Camera Module

WLAN/ Bluetooth Half Mini-Card Modules:

(**Factory Option**) Intel® Centrino® Ultimate-N 6300 Wireless LAN (**802.11a/g/n**)

(**Factory Option**) Intel® Centrino® Advanced-N 6235 Wireless LAN (**802.11a/g/n**) + Bluetooth **4.0**

(**Factory Option**) Intel® Centrino® Wireless-N 2230 Wireless LAN (**802.11b/g/n**) + Bluetooth **4.0**

(**Factory Option**) Wireless LAN (**802.11b/g/n**) + Bluetooth **4.0**

Environmental Spec

Temperature

Operating: 5°C - 35°C

Non-Operating: -20°C - 60°C

Relative Humidity

Operating: 20% - 80%

Non-Operating: 10% - 90%

Power

Removable 8-cell Smart Lithium-Ion Battery Pack

Full Range AC/DC Adapter

AC Input: 100 - 240V, 50 - 60Hz

DC Output: 19.5V, 11.8A (**230W**)

Dimensions & Weight

414mm (w) * 286mm (d) * 25.3 - 46.1mm (h)

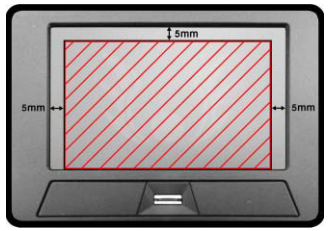
Around 4.1kg with Battery and ODD

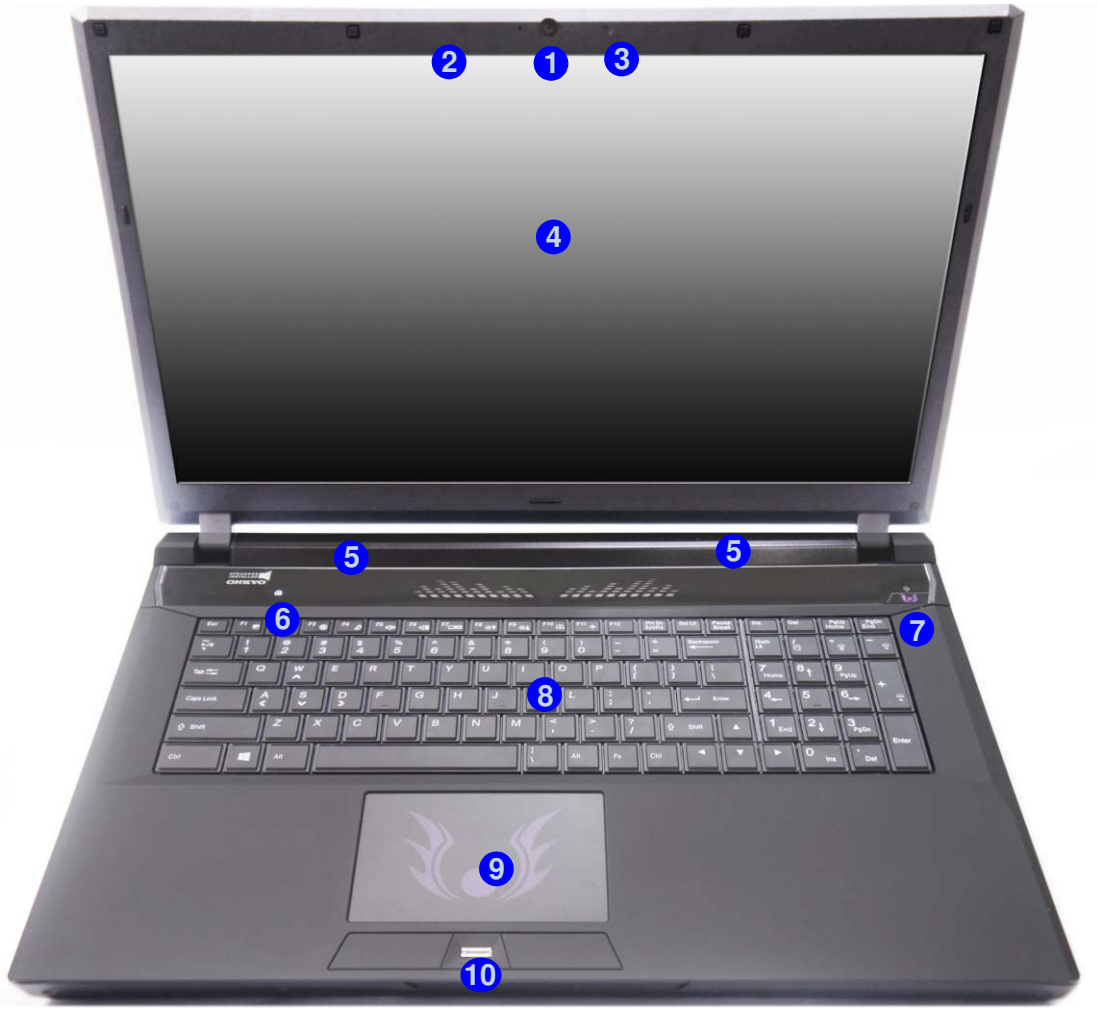
External Locator - Top View with LCD Panel Open

Figure 1
Top View

1. Built-In PC Camera
2. PC Camera LED
3. Built-In Microphone
4. LCD
5. Speakers
6. LED Indicators
7. Power Button
8. Illuminated Keyboard
9. TouchPad and Buttons
10. Fingerprint Reader (**Optional**)

Note that the Illuminated Touchpad has a defined valid operational area of sensitivity indicated within the sensor area of the illustration below.





External Locator - Front & Right side Views

Figure 2
Front Views

1. LED Power Indicators

Figure 3
Right Side Views

1. Optical Device Drive Bay
2. Emergency Eject Hole
3. Headphone Jack
4. Microphone Jack
5. S/PDIF-Out Jack
6. Line-In Jack
7. USB 2.0 Port

External Locator - Left Side & Rear View

Figure 4
Left Side View

1. Mini-IEEE 1394a Port
2. RJ-45 LAN Jack
3. USB 3.0 Port / USB Charge
4. USB 3.0 Port
5. Combined eSATA/ Powered USB 3.0 Port
6. Multi-in-1 Card Reader

Figure 5
Rear View

1. Vent/Fan Intake
2. Display Port
3. HDMI-Out Port
4. Mini Display Port
5. DC-In Jack
6. Security Lock Slot

External Locator - Bottom View

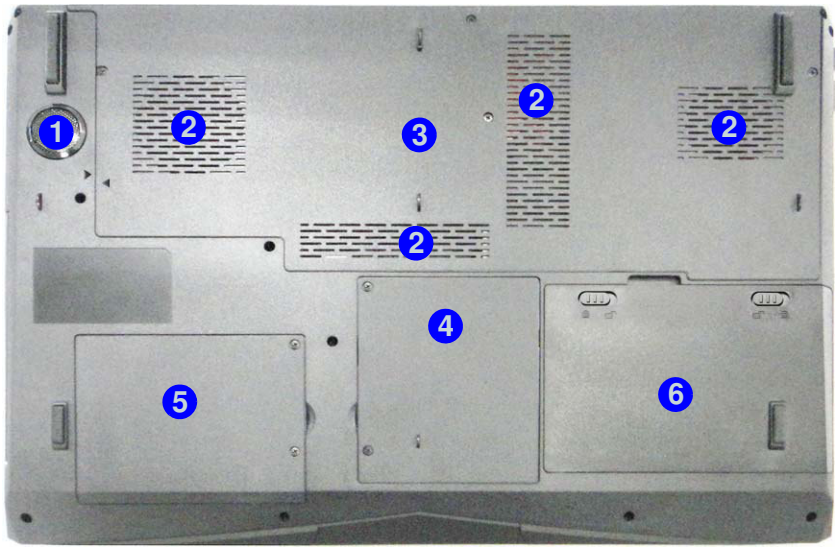


Figure 6
Bottom View

1. Sub Woofer
2. Fan Outlet/Intake
3. Component Bay Cover
4. Primary HDD Bay
5. Secondary HDD Bay
6. Battery

Overheating

To prevent your computer from overheating make sure nothing blocks the vent/fan intakes while the computer is in use.

NOTE: All disassembly procedures assume that the system is turned **OFF**, and disconnected from any power supply (the battery is removed too).

Maintenance Tools

The following tools are recommended when working on the notebook PC:

- M3 Philips-head screwdriver
- M2.5 Philips-head screwdriver (magnetized)
- M2 Philips-head screwdriver
- Small flat-head screwdriver
- Pair of needle-nose pliers
- Anti-static wrist-strap

Connections

Connections within the computer are one of four types:

Locking collar sockets for ribbon connectors	To release these connectors, use a small flat-head screwdriver to gently pry the locking collar away from its base. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Pressure sockets for multi-wire connectors	To release this connector type, grasp it at its head and gently rock it from side to side as you pull it out. Do not pull on the wires themselves. When replacing the connection, do not try to force it. The socket only fits one way.
Pressure sockets for ribbon connectors	To release these connectors, use a small pair of needle-nose pliers to gently lift the connector away from its socket. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Board-to-board or multi-pin sockets	To separate the boards, gently rock them from side to side as you pull them apart. If the connection is very tight, use a small flat-head screwdriver - use just enough force to start.

Maintenance Precautions

The following precautions are a reminder. To avoid personal injury or damage to the computer while performing a removal and/or replacement job, take the following precautions:

1. **Don't drop it**. Perform your repairs and/or upgrades on a stable surface. If the computer falls, the case and other components could be damaged.
2. **Don't overheat it**. Note the proximity of any heating elements. Keep the computer out of direct sunlight.
3. **Avoid interference**. Note the proximity of any high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage components and/or data. You should also monitor the position of magnetized tools (i.e. screwdrivers).
4. **Keep it dry**. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
5. **Be careful with power**. Avoid accidental shocks, discharges or explosions.
   - Before removing or servicing any part from the computer, turn the computer off and detach any power supplies.
   - When you want to unplug the power cord or any cable/wire, be sure to disconnect it by the plug head. Do not pull on the wire.
6. **Peripherals** – Turn off and detach any peripherals.
7. **Beware of static discharge**. ICs, such as the CPU and main support chips, are vulnerable to static electricity. Before handling any part in the computer, discharge any static electricity inside the computer. When handling a printed circuit board, do not use gloves or other materials which allow static electricity buildup. We suggest that you use an anti-static wrist strap instead.
8. **Beware of corrosion**. As you perform your job, avoid touching any connector leads. Even the cleanest hands produce oils which can attract corrosive elements.
9. **Keep your work environment clean**. Tobacco smoke, dust or other air-born particulate matter is often attracted to charged surfaces, reducing performance.
10. **Keep track of the components**. When removing or replacing any part, be careful not to leave small parts, such as screws, loose inside the computer.

Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines and power cord). You must also remove your battery in order to prevent accidentally turning the machine on.

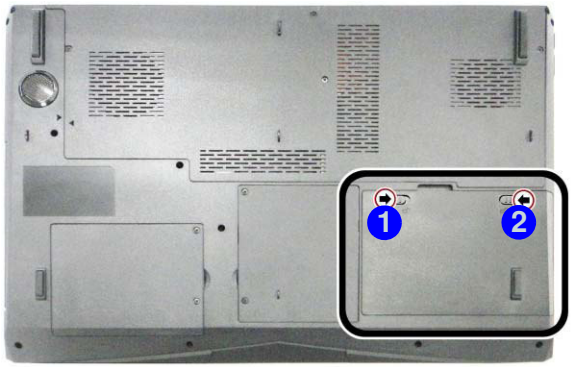
Cleaning

Do not apply cleaner directly to the computer, use a soft clean cloth.
Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.

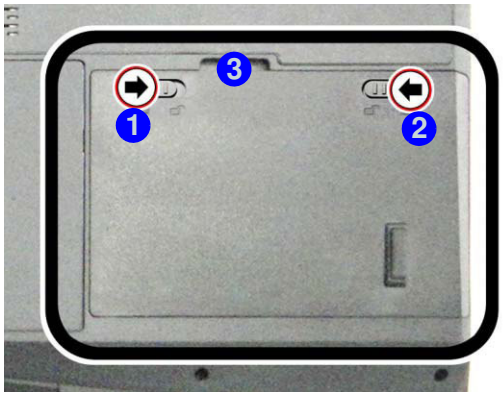
Removing the Battery

1. Turn the computer **off**, and turn it over.
2. Slide the latch 1 in the direction of the arrow (***Figure 1a***).
3. Slide the latch 2 in the direction of the arrow, and hold it in place (***Figure 1a***).
4. The battery may be levered up at point 3 (***Figure 1b***).
5. Lift the battery 4 out of the compartment (***Figure 1c***).

a.



b.



c.

Figure 1
Battery Removal

a. Slide the latch and hold in place.
b. Slide the battery out in the direction of the arrow.
c. Lift the battery out.

4. Battery

Figure 2
HDD Assembly Removal

a. Locate the HDD bay cover and remove the screws.
b. Remove the hard disk bay cover by levering the cover at point 3.

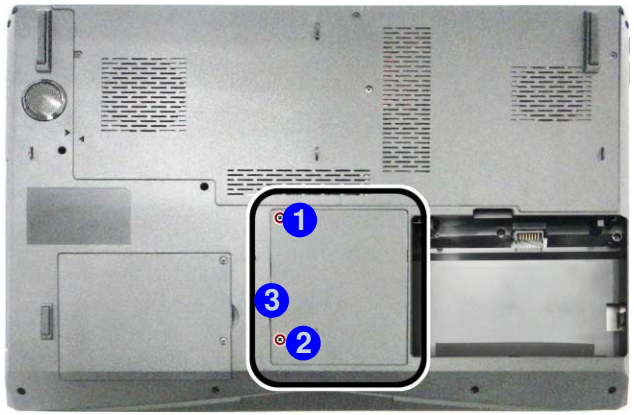
Removing the Hard Disk Drive

The hard disk drive can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 9.5mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.

Hard Disk Upgrade Process

1. Turn **off** the computer, and remove the battery (***page 2 - 5***).
2. Locate the hard disk bay cover and remove screws 1 - 2 (***Figure 2a***).
3. Remove the hard disk bay cover 4 by levering the cover at point 3 (***Figure 2b***).

a.



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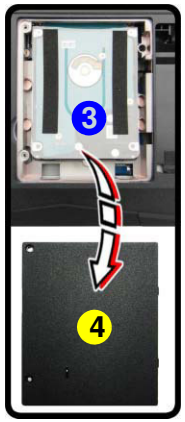


4.Hard Disk Bay Cover

- 2 Screws

HDD System Warning

New HDD's are blank. Before you begin make sure:

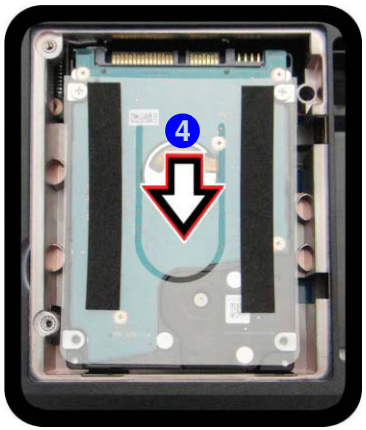
You have backed up any data you want to keep from your old HDD.

You have all the CD-ROMs and FDDs required to install your operating system and programs.

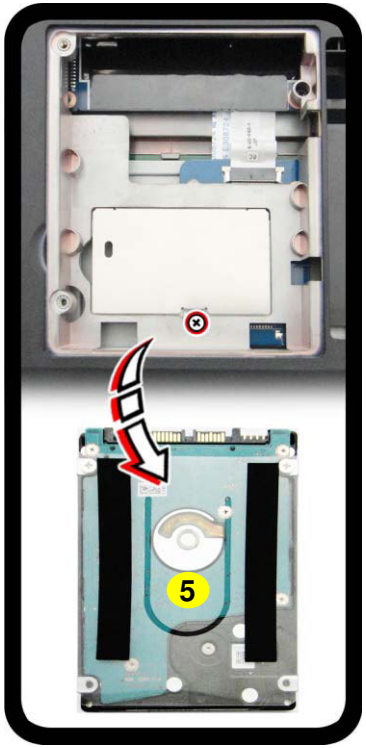
If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.

4. Slide the HDD assembly in the direction of the arrow 4 (*Figure 3c*).
5. Remove the hard disk assembly 5 (*Figure 3d*).
6. Remove screws 6 & 7 and the insulation plate 8 (*Figure 3e*).
7. Reverse the process to install a new hard disk (do not forget to replace all the screws and covers).

c.



d.



e.

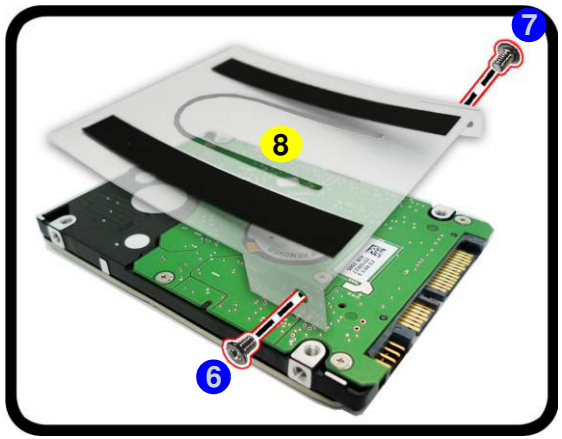


Figure 3
HDD Assembly Removal (cont'd.)

c. Slide the HDD assembly in the direction of the arrow.
d. Remove the hard disk assembly.
e. Remove the screws and the insulation plate.

5. HDD
8. HDD Insulation Plate

- 2 Screws

Hard Disk Size Note (Foam Rubber Insert)

Note that the hard disks pictured on the following pages are all 9.5mm(H) hard disk drives. In some cases 7mm(H) hard disk drives will be installed. For more information contact your distributor/supplier, and bear in mind your warranty terms.

Figure 4
Foam Rubber Insert for 7mm(H) HDDs

- If you are replacing a 9.5mm(H) HDD with a 7mm(H) HDD then insert the foam rubber insert (as shown above).
- If you are replacing a 7mm(H) HDD with a 9.5mm(H) HDD then remove the foam rubber insert.

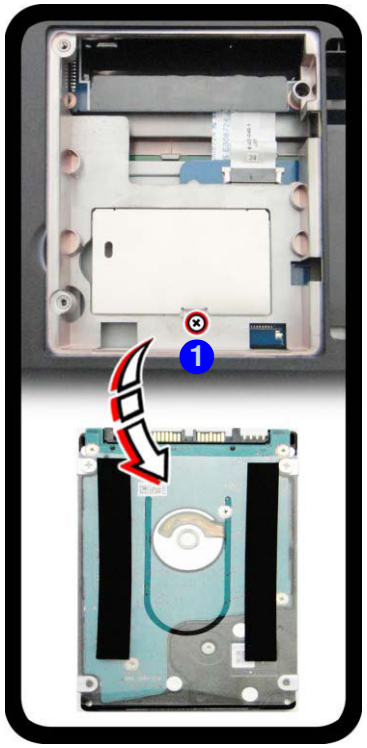
Removing the SSD

1. Turn **off** the computer, and remove the battery (*page 2 - 5*) and hard disk (*page 2 - 9*).
2. Remove the screws 1 from the shielding plate (*Figure 5a*).
3. Remove the SSD shielding plate 2 and remove the screw 3 from the SSD (*Figure 5b*).
4. The SSD module 4 will pop-up and you can remove it from the computer (*Figure 5c*).
5. Reverse the process to install a new SSD.

Figure 5
SSD Removal

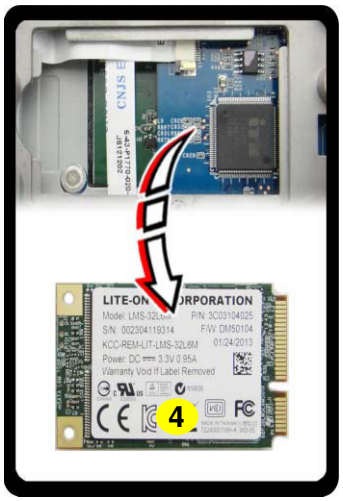
a. Remove the screws.
b. Remove the shielding plate and screw.
c. Remove the SSD module.

a.



b.

c.



2. SSD Shielding Plate
4. SSD Module

- 2 Screws

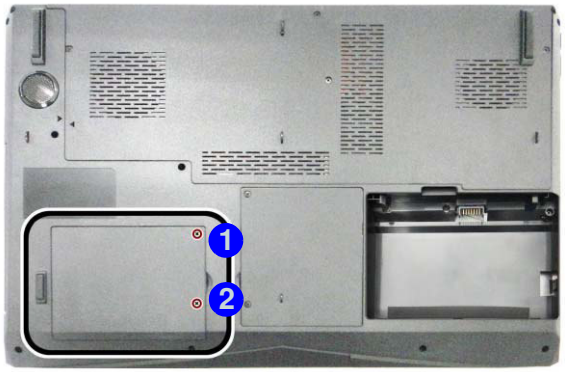
Figure 6
Optical Device Removal

a. Locate the secondary hard disk bay cover and remove the screws.
b. Remove the cover and screw.
c. Push the optical device out off the computer at point 6.

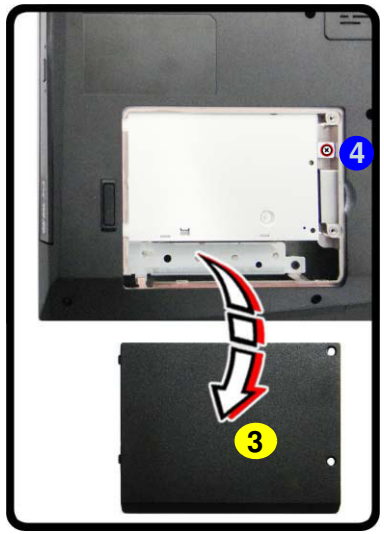
Removing the Optical (CD/DVD) Device

1. Turn **off** the computer, and remove the battery (*page 2 - 5*).
2. Locate the **secondary** hard disk bay cover and remove screws 1 & 2 (*Figure 6a*).
3. Remove the hard disk bay cover 3 and screw at point 4 (*Figure 6b*).
4. Use a screwdriver to carefully push out the optical device 5 out of the bay at point 6 (*Figure 6d*).
5. Reverse the process to install any new optical (CD/DVD) device.

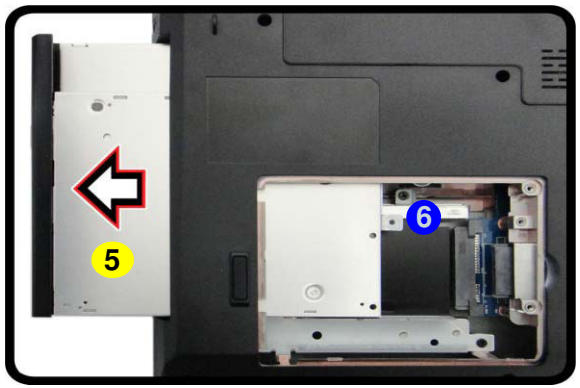
a.



b.



c.



3. Secondary HDD Bay Cover
5. Optical Device

- 3 Screws

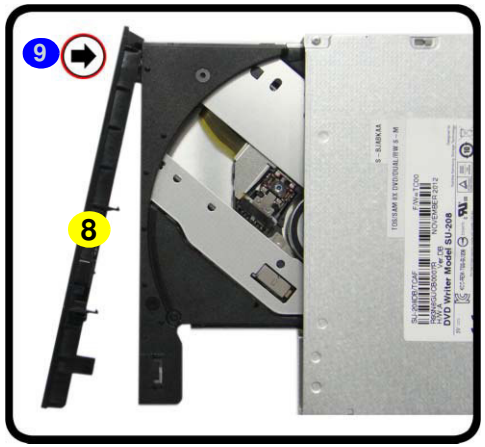
6. Carefully pry the bezel 8 off the optical device at point 7 (*Figure 7d*).
7. Separate the bezel 8 and the optical device.
8. Reverse the process to attach the front bezel 8 with the new optical device at point 9 (*Figure 7f*).
9. Insert the new device and carefully slide it into the computer (the device only fits one way. DO NOT FORCE IT; The screw holes should line up).
10. Replace the component bay cover and tighten the screws.
11. Restart the computer to allow it to automatically detect the new device.

Figure 7
Optical Device Removal (cont'd.)

d. Pry the bezel off the optical device.
e. Separate the bezel and optical device
f. Install the front bezel.

d.

f.



e.

8. Bezel Cover

- 1 Screw

Removing the Hard Disk from the Secondary HDD Bay

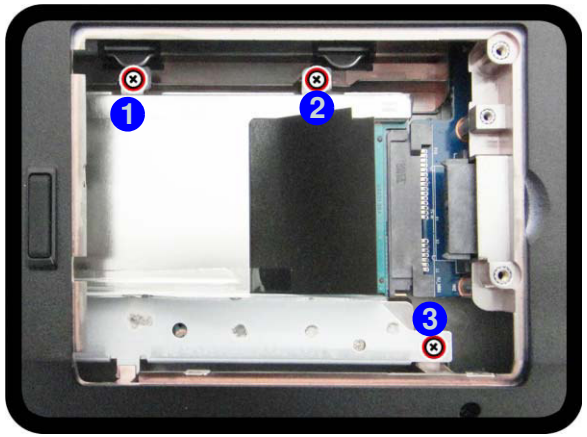
Note that the **secondary** hard disk (if installed) is located under the optical device bay (CD/DVD).

1. Turn **off** the computer, and turn it over, remove the battery (*page 2 - 5*) and optical device (*page 2 - 10*).
2. Remove screws 1 - 3 from the secondary HDD assembly (*Figure 8a*).
3. Slide the secondary HDD assembly in the direction of the arrow 4 (it will not move fully out of the bay *Figure 8a*).
4. Lift the secondary HDD assembly 5 up and out of the bay (in the reverse direction of the arrow 4 *Figure 8c*).

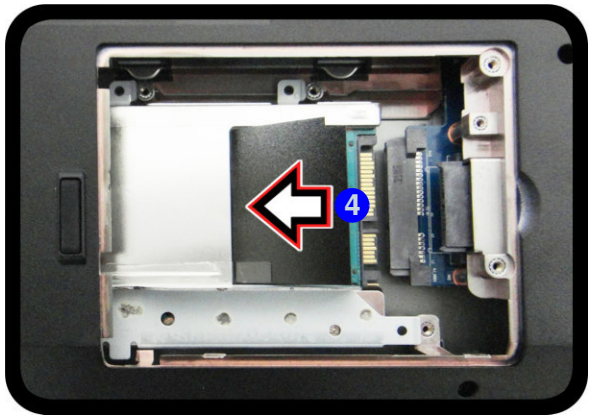
Figure 8
Secondary HDD Assembly Removal

a. Remove the screws from the secondary HDD assembly.
b. Slide the secondary HDD assembly in the direction of the arrow.
c. Lift the secondary HDD assembly up and out of the bay.

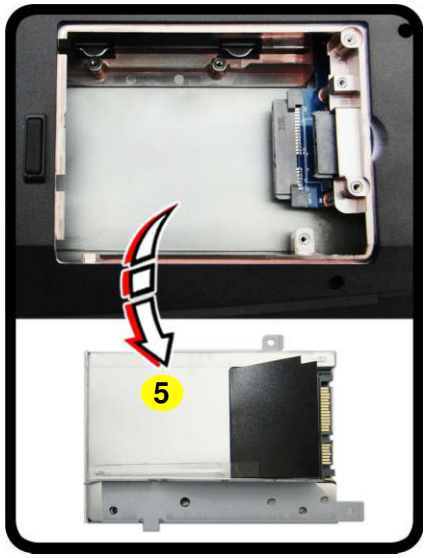
a.



b.



c.



5. Hard Disk Assembly

- 3 Screws

5. Remove screws 6 - 9 and the insulation plate 10 from the hard disk 11 (*Figure 9d*).

d.

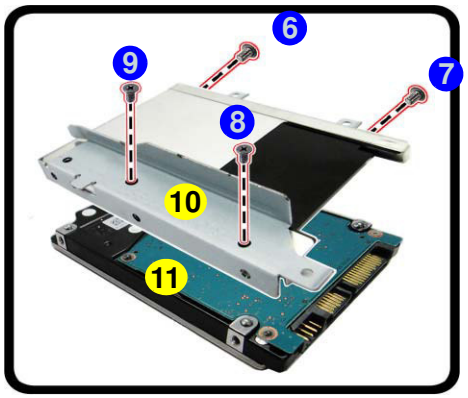
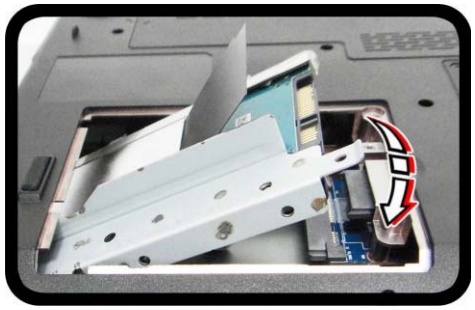
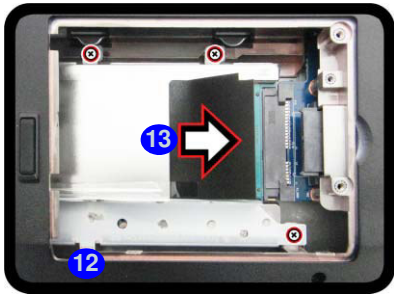


Figure 9
Secondary HDD Assembly Removal

d. Remove the screws and the insulation plate.

6. Reverse the process to install a new disk (make sure you install the insulation plate).
7. Slide the HDD assembly into the bay at an angle as illustrated.
8. Make sure the insulation plate slides under the HDD bay guide at point 12.
9. Slide the assembly in the direction of the arrow 13 and secure the assembly with the screws.





10. HDD Insulation Plate
11. HDD

- 4 Screws

Figure 10
RAM Module Removal

a. Remove the screws.
b. Remove the screws at the rear of the computer
c. Slide the bottom cover until the cover and case indicators are aligned.

Removing the Primary System Memory (RAM)

The computer has **four** memory sockets for 204 pin Small Outline Dual In-line (SO-DIMM) **DDR III (DDR3)** type memory modules (see *"Memory" on page 1 - 2*). The total memory size is automatically detected by the POST routine once you turn on your computer.

Note that **four SO-DIMMs are only supported by Quad-Core CPUs**; **Dual-Core CPUs support two SO-DIMMs maximum (see *"Memory" on page 1 - 2* for full details).**
Two primary memory sockets are located under component bay cover (the bottom case cover), and two secondary memory sockets are located under the keyboard (not user upgradable). If you are installing only two RAM modules then they should be installed in the primary memory sockets under the component bay cover.

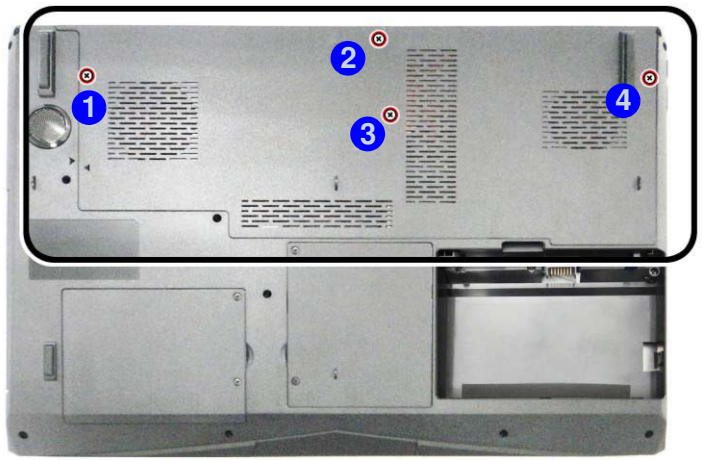
Note that the RAM located under the keyboard is not user upgradable. Contact your service center for more information if you wish to upgrade the memory in the secondary memory sockets.

Memory Upgrade Process

1. Turn **off** the computer, and turn it over, remove the battery (*page 2 - 5*).
2. Remove screws 1 - 4 at the bottom of the computer (*Figure 10a*) .
3. Remove screws 5 - 6 at the rear of the computer (*Figure 10b*).
4. Slide the bottom cover in the direction of the arrow 7 until the cover & case indicators 8 are aligned (*Figure 10c*).

- 6 Screws

a.

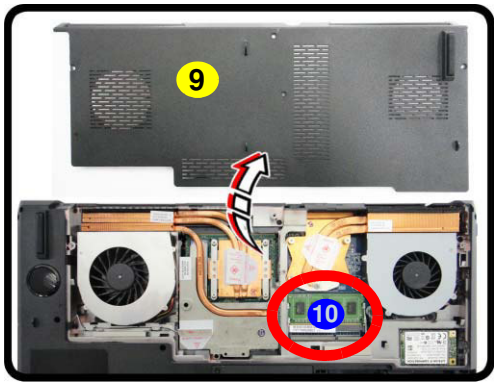


b.

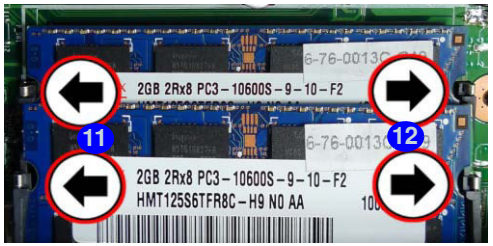
c.

5. Lift the component bay cover 9 off the computer case. The modules will be visible at point 10 (*Figure 11d*).
6. Gently pull the two release latches (11 & 12) on the sides of the memory socket(s) in the direction indicated below (*Figure 11e*).
7. The RAM module 13 will pop-up, and you can remove it (*Figure 11f*).
8. Pull the latches to release the second module if necessary.
9. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
10. The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE the module; it should fit without much pressure.
11. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
12. Replace the bay cover and screws.
13. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

d.



e.



f.

Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

Figure 11
RAM Module Removal (cont'd.)

d. Lift the component bay cover off the computer case. The modules will be visible at point 10.
e. Gently pull the two release latches on the sides of the memory socket(s) in the direction indicated below.
f. The RAM module will pop-up, and you can remove it.

9. Component Bay Cover
13. RAM Module

Removing the Secondary System Memory (RAM)

Memory Upgrade Process

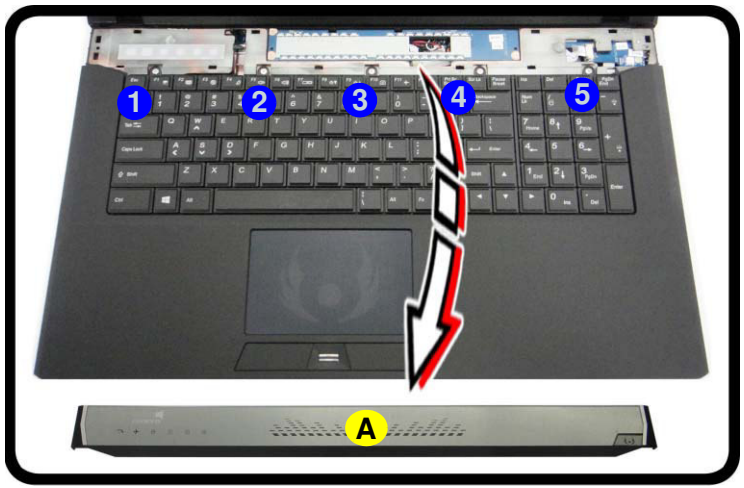
1. Turn **off** the computer, and turn it over, remove the battery (*page 2 - 5*), and component bay cover (*page 2 - 14*).
2. Remove the top cover module A (*Figure 12a*).
3. Remove screws 1 - 5 (*Figure 12a*).
4. Carefully lift the keyboard B up, being careful not to bend the keyboard ribbon cable 6 (*Figure 12c*).

Figure 12
RAM Module Removal

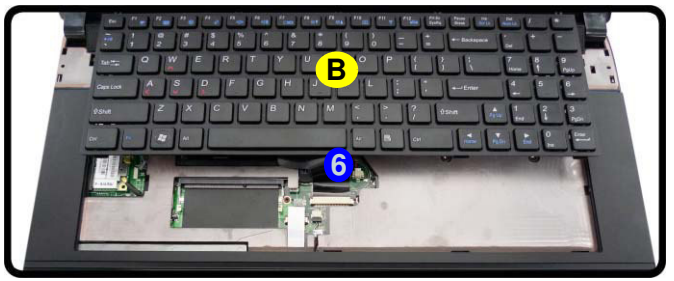
a. Remove the top cover module.
b. Remove the screws.
c. Carefully lift the keyboard up, being careful not to bend the keyboard ribbon cable.

a.

b.



c.

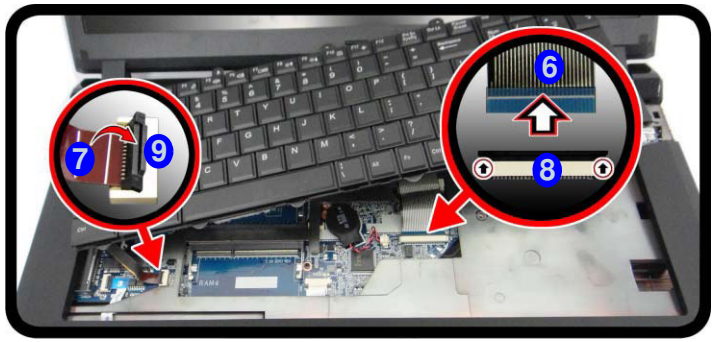


A. Top Cover Module
B. Keyboard

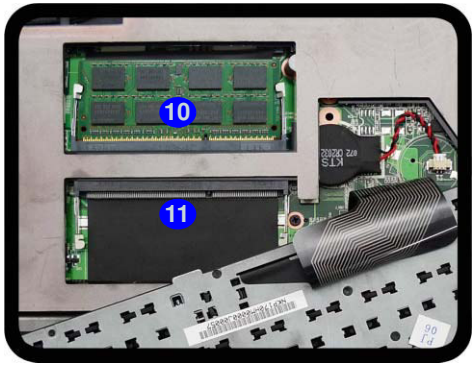
- 5 Screws

5. Disconnect the keyboard ribbon cable 6 and LED ribbon cable 7 from the locking collar socket 8 & 9 by using a small flat-head screwdriver to pry the locking collar pins away from the base. (*Figure 13e*).
6. Remove the keyboard and the memory sockets 10 & 11 will be visible (*Figure 13f*).
7. Gently pull the two release latches (12 & 13) on the sides of the memory socket(s) in the direction indicated below (*Figure 13g*).
8. The RAM module 14 will pop-up, and you can remove it.
9. Pull the latches to release the second module if necessary.
10. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
11. The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE the module; it should fit without much pressure.
12. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
13. Replace the bay cover and screws.
14. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

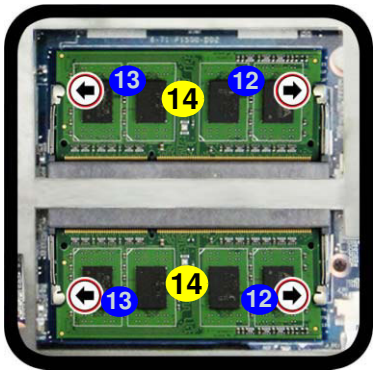
e.



f.



g.



Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

Figure 13
RAM Module Removal (cont'd.)

e. Disconnect the keyboard ribbon cable and LED ribbon cable from the locking collar socket by using a small flat-head screwdriver to pry the locking collar pins away from the base.
f. Remove the keyboard and the memory sockets will be visible.
g. Gently pull the two release latches on the sides of the memory socket(s) in the direction indicated below.

14. RAM Modules

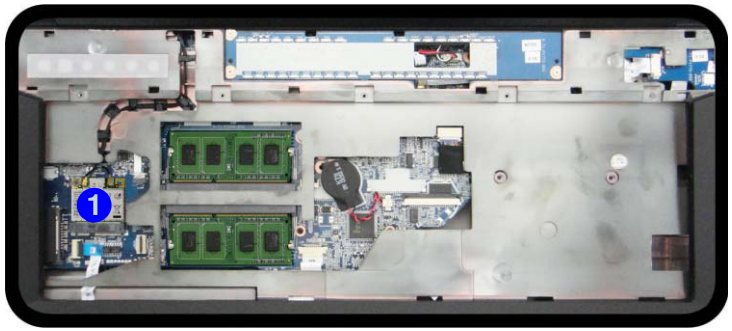
Figure 14
Wireless LAN Module Removal

a. The Wireless LAN module will be visible at point 1 under the keyboard
b. Disconnect the cables and remove the screw.
c. The WLAN module will pop up.
d. Lift the WLAN module out.

Removing the Wireless LAN Module

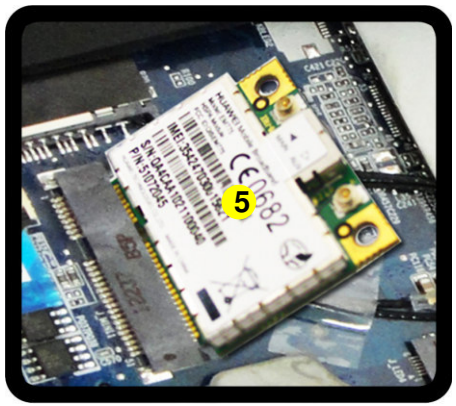
1. Turn **off** the computer, remove the battery (***page 2 - 5***) and the keyboard (***page 2 - 16***).
2. The Wireless LAN module will be visible at point 1 under the keyboard (***Figure 14a***).
3. Carefully disconnect cables 2 - 3, then remove screw 4 from the module socket (***Figure 14b***).
4. The Wireless LAN module 5 will pop-up (***Figure 14c***).
5. Lift the Wireless LAN module (***Figure 14d***) up and off the computer.

a.

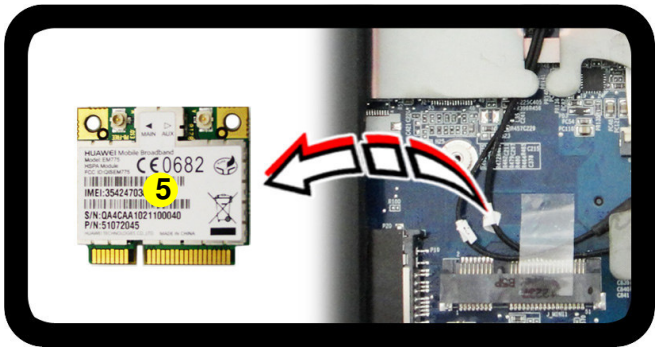


b.

c.



d.



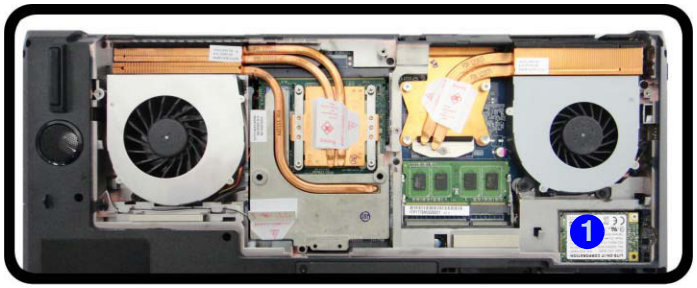
5. WLAN Module

- 1 Screw

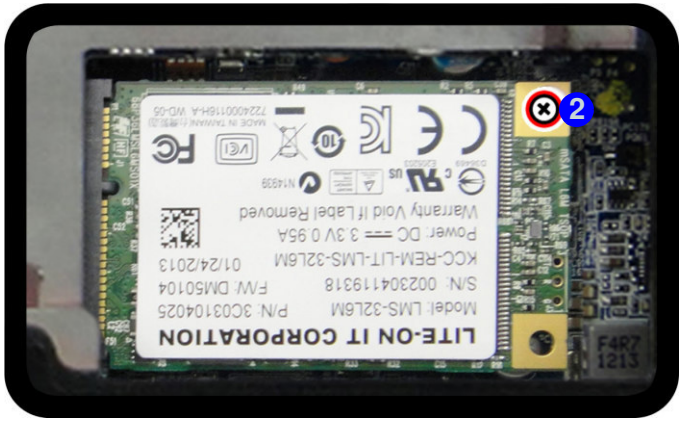
Removing the MSATA Module

1. Turn **off** the computer, remove the battery (*page 2 - 5*), and component bay cover (*page 2 - 14*).
2. Locate the module, it is visible at point 1 (*Figure 15a*).
3. Carefully remove the screw 2 from the module (*Figure 15b*).
4. Lift the module 3 up and off the computer (*Figure 15b*).

a.



b.



c.

d.

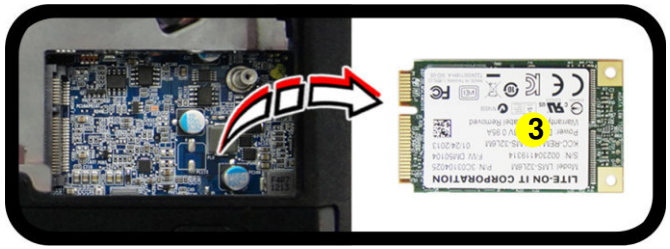


Figure 15
MSATA Module Removal

a. Locate the module.
b. Remove the screw.
c. The module will pop-up.
d. Lift the module up off the socket.

3. MSATA Module

- 1 Screw